Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-41 (canceled)

Claim 42 (currently amended): A method of reconstituting a non-primate mammalian embryo, comprising

(i) transferring a non-primate mammalian donor nucleus from a diploid somatic cell into a first recipient oocyte;

(ii) removing the donor nucleus from the first recipient oocyte;

(iii) ~~either activating~~ providing a second recipient oocyte or enucleated ~~ing a~~ fertilized zygote; and

(iv) transferring the donor nucleus from the first recipient oocyte into the ~~activated~~ second recipient oocyte or the enucleated fertilized zygote to obtain a reconstituted non-primate mammalian embryo, wherein the second recipient oocyte is activated prior to, concomitant with or following transfer of the donor nucleus.

Claim 43 (previously presented): The method as claimed in claim 42, wherein the first oocyte is a mature metaphase II oocyte or an activated metaphase II oocyte.

Claim 44 (previously presented): The method as claimed in claim 42, wherein the second oocyte is an enucleated metaphase II oocyte.

Claim 45 (previously presented): The method as claimed in claim 42, in which a reconstructed embryo obtained thereby is cultured *in vitro* or *in vivo* to a stage suitable for transfer to a final surrogate recipient for development to term.

Claim 46 (previously presented): The method as claimed in claim 42, in which a reconstructed embryo obtained thereby is transferred to a final surrogate recipient to support embryo development and development to term.

Claim 47 (previously presented): The method as claimed in claim 42, in which the donor nucleus is genetically modified.

Claim 48 (canceled)

Claim 49 (previously presented): The method as claimed in claim 42, wherein the donor nucleus is from a G1 cell.

Claim 50 (previously presented): The method as claimed in claim 42, wherein the diploid cell is arrested at the G1/S-phase border.

Claims 51-55 (canceled)

Claim 56 (previously presented): The method as claimed in claim 42, wherein the donor nucleus is donated by a diploid cell arrested by any point in the cell cycle.

Claim 57 (previously presented): The method as claimed in claim 42, wherein the first recipient oocyte is enucleated prior to transfer of the donor nucleus into said first recipient oocyte.

Claim 58 (previously presented): The method as claimed in claim 42, wherein the donor nucleus is transferred into the first recipient oocyte by cell fusion, or by cell or nuclear injection.

Claim 59 (previously presented): The method as claimed in claim 42, in which the non-primate mammalian embryo is an ungulate species embryo.

Claim 60 (previously presented): The method as claimed in claim 59, wherein the non-primate mammalian embryo is a cow or bull, pig, sheep, goat, camel, or water buffalo embryo.

Claim 61 (previously presented): The method as claimed in claim 42, wherein the non-primate mammalian embryo is a mouse, rat, or other rodent embryo.

Claim 62 (previously presented): The method as claimed in claim 42, wherein the non-primate mammalian embryo is a lagomorph embryo.

Claim 63 (previously presented): The method as claimed in claim 62, wherein the non-primate lagomorph embryo is a rabbit embryo.

Claims 64-65 (canceled)

Claim 66 (previously presented): The method as claimed in claim 42, wherein the donor nucleus is transferred from the first recipient oocyte to a fertilized zygote.

Claim 67 (previously presented): The method as claimed in claim 42, wherein the second recipient oocyte is activated by chemical or physical means.

Claim 68 (previously presented): The method as claimed in claim 42, wherein the second recipient oocyte is enucleated.

Claim 69 (currently amended): A method of preparing a non-primate mammal, the method comprising:

(a) transferring a non-primate mammalian donor nucleus from a diploid somatic cell into a first recipient oocyte;

(b) removing the donor nucleus from the first recipient oocyte;

(c) either ~~activating and~~ enucleating a second recipient oocyte or enucleating a fertilized zygote of the donor species; and

(d) transferring the donor nucleus from the first recipient oocyte into the second recipient oocyte or zygote of the same species as the donor to obtain a reconstituted non-primate mammalian embryo, wherein the second recipient oocyte is activated prior to, concomitant with or following transfer of the donor nucleus;

(e) causing a fetus to develop from the embryo, thereby obtaining a non-primate mammalian fetus; and

(f) causing a non-primate mammal to develop to term from the non-primate mammalian fetus, thereby obtaining a non-primate mammal.

Claim 70 (previously presented): The method as claimed in claim 69, further comprising:

(g) breeding the non-primate mammal.

Claim 71 (previously presented): A method as claimed in claim 69, wherein the non-primate mammalian embryo is further manipulated prior to full development of the embryo.

Claim 72 (previously presented): A method as claimed in claim 69, wherein the non-primate mammalian fetus is further manipulated prior to full development of the fetus.

Claim 73 (previously presented): The method as claimed in claim 42, further comprising isolating a cell line or cell population from the reconstituted embryo.

Claim 74 (previously presented): The method as claimed in claim 69, further comprising isolating a cell line or cell population from the fetus.

Claim 75 (previously presented): The method as claimed in claim 69, wherein a new cell line or cell population is derived from the non-primate mammal.

Claim 76 (previously presented): The method as claimed in claim 69, wherein more than one non-primate mammal is derived from the reconstituted embryo.

Claims 77-82 (canceled)

Claim 83 (previously presented): The method as claimed in claim 67, wherein the chemical or physical activation is by a treatment that induces calcium entry into the oocyte or release of internal calcium stores.

Claim 84 (previously presented): The method as claimed in claim 67, wherein the chemical activation is by treatment with ethanol, ionomycin, inositol tris-phosphate or calcium ionophore A23187.

Claim 85 (previously presented): The method as claimed in claim 67, wherein the chemical activation is by treatment with extracts of sperm.

Claim 86 (previously presented): The method as claimed in claim 67, wherein the physical activation is by application of a DC electrical stimulus.

Claim 87 (previously presented): The method as claimed in any one of claims 83-86, wherein the chemical or physical activation further comprises treatment with inhibitors of protein synthesis or inhibitors of serine threonine protein kinases.

Claim 88 (previously presented): The method as claimed in claim 42, wherein the non-primate mammalian embryo is a pig embryo.

Claims 89 (canceled)

Claim 90 (previously presented): The method as claimed in claim 59, wherein the non-primate mammalian embryo is a cow embryo.

Claim 91 (canceled)

Claim 92 (previously presented): The method as claimed in claim 59, wherein the non-primate mammalian embryo is a sheep embryo.

Claims 93-113 (canceled)